

CLAIMS

We claim:

1. An isolated nucleic acid probe for identifying a species selected from the group consisting of *Aspergillus flavus* (SEQ ID NO:1), *Aspergillus fumigatus* (SEQ ID NO:2), *Aspergillus niger* (SEQ ID NO:3), *Aspergillus terreus* (SEQ ID NO:4), *Aspergillus nidulans* (SEQ ID NO:5), *Fusarium solani* (SEQ ID NO:6), *Fusarium moniliforme* (SEQ ID NO:7), *Mucor rouxii* (SEQ ID NO:8), *Mucor racemosus* (SEQ ID NO:9), *Mucor plumbeus* (SEQ ID NO:10), *Mucor indicus* (SEQ ID NO:11), *Mucor circinilloides f. circinelloides* (SEQ ID NO:12), *Rhizopus oryzae* (SEQ ID NO:13 and NO:14), *Rhizopus microsporus* (SEQ ID NO:15 and 16), *Rhizopus circinans* (SEQ ID NO:17 and 18), *Rhizopus stolonifer* (SEQ ID NO: 19), *Rhizomucor pusillus* (SEQ ID NO:20), *Absidia corymbifera* (SEQ ID NO:21 and 22), *Cunninghamella elegans* (SEQ ID NO:23), *Pseudallescheria boydii* (teleomorph of *Scedosporium apiospermum*) (SEQ ID NO:24, 25, 26, and 27), *Penicillium notatum* (SEQ ID NO:28), or *Sporothrix schenkii* (SEQ ID NO:29) wherein the probe selectively hybridizes to a portion of the nucleic acid of SEQ ID NOS:1-29, or a complementary sequence thereof, respectively.

2. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with an *Aspergillus flavus* nucleic acid of SEQ ID NO:1, or a complementary sequence thereof.

3. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with an *Aspergillus fumigatus* nucleic acid of SEQ ID NO:2, or a complementary sequence thereof.

4. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with an *Aspergillus niger* nucleic acid of SEQ ID NO:3, or a complementary sequence thereof.

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5. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with an *Aspergillus terreus* nucleic acid of SEQ ID NO:4, or a complementary sequence thereof.

6. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with an *Aspergillus nidulans* nucleic acid of SEQ ID NO:5, or a complementary sequence thereof.

7. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Fusarium solani* nucleic acid of SEQ ID NO:6, or a complementary sequence thereof.

8. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Fusarium moniliforme* of SEQ ID NO:7, or a complementary sequence thereof.

9. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Mucor rouxii* of SEQ ID NO:8, or a complementary sequence thereof.

10. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Mucor racemosus* of SEQ ID NO:9, or a complementary sequence thereof.

11. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Mucor plumbeus* of SEQ ID NO:10, or a complementary sequence thereof.

12. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Mucor indicus* of SEQ ID NO:11, or a complementary sequence thereof.

13. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Mucor circinilloides f. circinelloides* of SEQ ID NO:12, or a complementary sequence thereof.

14. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Rhizopus oryzae* of SEQ ID NO:13 and 14, or a complementary sequence thereof.

15. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Rhizopus microsporus* of SEQ ID NO:15 and 16, or a complementary sequence thereof.

16. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Rhizopus circinans* of SEQ ID NO:17 and 18, or a complementary sequence thereof.

17. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Rhizopus stolonifer* of SEQ ID NO:19, or a complementary sequence thereof.

18. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Rhizomucor pusillus* of SEQ ID NO:20, or a complementary sequence thereof.

19. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Absidia corymbifera* of SEQ ID NO:21 and 22, or a complementary sequence thereof.

20. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Cunninghamella elegans* of SEQ ID NO:23, or a complementary sequence thereof.

21. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Pseudallescheria boydii* (teleomorph of *Scedosporium apiospermum*) of SEQ ID NO:24, 25, 26 and 27, or a complementary sequence thereof.

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22. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Penicillium notatum* of SEQ ID NO:28, or a complementary sequence thereof.

23. The isolated nucleic acid probe of Claim 1 capable of selectively hybridizing with a *Sporothrix schenckii* of SEQ ID NO:29, or a complementary sequence thereof.

24. A method of detecting a species selected from the group consisting of *Aspergillus flavus* (SEQ ID NO:1), *Aspergillus fumigatus* (SEQ ID NO:2), *Aspergillus niger* (SEQ ID NO:3), *Aspergillus terreus* (SEQ ID NO:4), *Aspergillus nidulans* (SEQ ID NO:5), *Fusarium solani* (SEQ ID NO:6), *Fusarium moniliforme* (SEQ ID NO:7), *Mucor rouxii* (SEQ ID NO:8), *Mucor racemosus* (SEQ ID NO:9), *Mucor plumbeus* (SEQ ID NO:10), *Mucor indicus* (SEQ ID NO:11), *Mucor circinilloides f. circinelloides* (SEQ ID NO:12), *Rhizopus oryzae* (SEQ ID NO:13 and NO:14), *Rhizopus microsporus* (SEQ ID NO:15 and 16), *Rhizopus circinans* (SEQ ID NO:17 and 18), *Rhizopus stolonifer* (SEQ ID NO: 19), *Rhizomucor pusillus* (SEQ ID NO:20), *Absidia corymbifera* (SEQ ID NO:21 and 22), *Cunninghamella elegans* (SEQ ID NO:23), *Pseudallescheria boydii* (teleomorph of *Scedosporium apiospermum*) (SEQ ID NO:24, 25, 26, and 27), *Penicillium notatum* (SEQ ID NO:28), or *Sporothrix schenckii* (SEQ ID NO:29) in a sample comprising combining the sample with a nucleic acid probe capable of selectively hybridizing with a nucleic acid of SEQ ID NO:1-29, or a complementary sequence thereof, respectively, the presence of hybridization indicating the detection of the species in the sample.

25. The method of Claim 24, wherein the probe is capable of selectively hybridizing with an *Aspergillus flavus* nucleic acid of SEQ ID NO:1, or a complementary sequence thereof.

26. The method of Claim 24, wherein the probe is capable of selectively hybridizing with an *Aspergillus fumigatus* nucleic acid of SEQ ID NO:2, or a complementary sequence thereof.

27. The method of Claim 24, wherein the probe is capable of selectively hybridizing with an *Aspergillus niger* nucleic acid of SEQ ID NO:3, or a complementary sequence thereof.

28. The method of Claim 24, wherein the probe is capable of selectively hybridizing with an *Aspergillus terreus* nucleic acid of SEQ ID NO:4, or a complementary sequence thereof.

29. The method of Claim 24, wherein the probe is capable of selectively hybridizing with an *Aspergillus nidulans* nucleic acid of SEQ ID NO:5, or a complementary sequence thereof.

30. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Fusarium solani* nucleic acid of SEQ ID NO:6, or a complementary sequence thereof.

31. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Fusarium moniliforme* of SEQ ID NO:7, or a complementary sequence thereof.

32. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Mucor rouxii* of SEQ ID NO:8, or a complementary sequence thereof.

33. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Mucor racemosus* of SEQ ID NO:9, or a complementary sequence thereof.

34. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Mucor plumbeus* of SEQ ID NO:10, or a complementary sequence thereof.

35. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Mucor indicus* of SEQ ID NO:11, or a complementary sequence thereof.

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36. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Mucor circinilloides f. circinelloides* of SEQ ID NO:12, or a complementary sequence thereof.

37. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Rhizopus oryzae* of SEQ ID NO:13 and 14, or a complementary sequence thereof.

38. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Rhizopus microsporus* of SEQ ID NO:15 and 16, or a complementary sequence thereof.

39. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Rhizopus circinans* of SEQ ID NO:17 and 18, or a complementary sequence thereof.

40. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Rhizopus stolonifer* of SEQ ID NO:19, or a complementary sequence thereof.

41. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Rhizomucor pusillus* of SEQ ID NO:20, or a complementary sequence thereof.

42. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Absidia corymbifera* of SEQ ID NO:21 and 22, or a complementary sequence thereof.

43. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Cunninghamella elegans* of SEQ ID NO:23, or a complementary sequence thereof.

44. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Pseudallescheria boydii* (teleomorph of

Scedosporium apiospermum) of SEQ ID NO:24, 25, 26 and 27, or a complementary sequence thereof.

45. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Penicillium notatum* of SEQ ID NO:28, or a complementary sequence thereof.

46. The method of Claim 24, wherein the probe is capable of selectively hybridizing with a *Sporothrix schenkii* of SEQ ID NO:29, or a complementary sequence thereof.

47. An isolated nucleic acid probe for identifying a member of a genus selected from the group consisting of *Aspergillus*, *Fusarium* and *Mucor* wherein the probe selectively hybridizes to a portion of the nucleic acid of SEQ ID NOS:58-60, or a complementary sequence thereof, respectively.

48. An isolated nucleic acid probe for identifying a fungus wherein the probe selectively hybridizes to a portion of the nucleic acid of SEQ ID NO:61, or a complementary sequence thereof, respectively.

49. A method for detecting a member of a genus selected from the group consisting of *Aspergillus*, *Fusarium* and *Mucor* in a sample comprising combining the sample with a nucleic acid probe capable of selectively hybridizing to a portion of the nucleic acid of SEQ ID NOS:58-60, or a complementary sequence thereof, respectively, the presence of hybridization indicating the detection of the respective genus.

50. A method for detecting a fungus in a sample comprising combining the sample with a nucleic acid probe capable of selectively hybridizing to a portion of the nucleic acid of SEQ ID NO:61, or a complementary sequence thereof, respectively, the presence of hybridization indicating the detection of the fungus.